IN THE CLAIMS

For the convenience of the Examiner, all pending claims of the Application are reproduced below, regardless of whether amended or not.

1. (Currently Amended) A method for providing a network service, comprising:

receiving instructions from a service manager at a forwarding agent, the instructions indicating how packets received by the forwarding agent are to be processed;

processing the packets received at the forwarding agent according to the instructions; ~~and~~

forwarding selected packets from the forwarding agent to the service manager in response to the instructions, wherein the forwarding agent and the service manager are configured on a single network device such that one or more packets may be exchanged between the forwarding agent and the service manager within the network device;

receiving packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet;

receiving a subsequent packet at the forwarding agent;

determining that the subsequent packet matches a criteria included in the packet handling instructions; and

handling the subsequent packet at the forwarding agent according to the packet handling instructions, wherein the instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;

a load balancing operation;

a packet modification operation;

a tunneling operation; and

a tag switching ~~operation;~~ operation.

2. (Previously Presented) The method of Claim 1, wherein the forwarding agent forwards the selected packets to the service manager using a user datagram protocol (UDP).

3. (Currently Amended) A method for providing a network service, comprising:

receiving packet interest instructions from a service manager at a forwarding agent, the instructions specifying packets that the forwarding agent is to communicate to the service manager;

receiving an initial packet at a forwarding agent that matches one of the packets specified in the packet interest instructions from the service manager; and

communicating the initial packet from the forwarding agent to the service manager so that the packet may be processed at the service manager to determine one or more actions that are to be performed for the packet, wherein the forwarding agent and the service manager are configured on a single network device such that one or more packets may be exchanged between the forwarding agent and the service manager within the network device;

receiving packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet;

receiving a subsequent packet at the forwarding agent;

determining that the subsequent packet matches a criteria included in the packet handling instructions; and

handling the subsequent packet at the forwarding agent according to the packet handling instructions, wherein the instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;

a load balancing operation;

a packet modification operation;

a tunneling operation; and

a tag switching operation.

4. (Canceled)

5. (Currently Amended) The method of ~~Claim 4~~ Claim 3, wherein the receiving packet handling instructions from the service manager at the forwarding agent that include

the actions determined by the service manager for the packet includes receiving a user datagram protocol (UDP) packet at the forwarding agent.

6. (Currently Amended) The method of ~~Claim 4~~ Claim 3, further comprising:

receiving the initial packet from the service manager at the forwarding agent along with the packet handling instructions; and

handling the packet at the forwarding agent according to the packet handling instructions.

7. (Previously Presented) The method of Claim 6, wherein handling the packet at the forwarding agent according to the packet handling instructions includes translating the destination internet protocol (IP) address in the packet so that the packet is forwarded to a different IP address than the IP address originally included in a packet header.

8. (Previously Presented) The method of Claim 6, wherein handling the packet at the forwarding agent according to the packet handling instructions includes communicating the packet to a destination specified in the packet handling instructions using tag switching.

9. (Previously Presented) The method of Claim 6, wherein handling the packet at the forwarding agent according to the packet handling instructions includes communicating the packet to a destination specified in the packet handling instructions using IP tunneling.

10. (Canceled)

11. (Previously Presented) The method of Claim 3, further comprising:

forwarding the packet from the service manager to a destination other than the forwarding agent, the destination being determined by the service manager.

12. (Previously Presented) The method of Claim 11, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes translating the destination IP address in the packet.

13. (Previously Presented) The method of Claim 11, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes communicating the packet to the destination using tag switching.

14. (Previously Presented) The method of Claim 11, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes communicating the packet to the destination using IP tunneling.

15. (Previously Presented) The method of Claim 3, wherein the forwarding agent is implemented on a selected one of a group consisting of:

a switch;

a load balancer; and

a router.

16. (Canceled)

17. (Previously Presented) The method of Claim 3, wherein receiving packet interest instructions from a service manager at a forwarding agent specifying packets that the forwarding agent is instructed to communicate to the service manager includes receiving a multicast of the packet interest instructions communicated to a plurality of forwarding agents.

18. (Previously Presented) The method of Claim 17, further comprising:

receiving unicast packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet.

19. (Previously Presented) The method of Claim 17, further comprising:

receiving multicast packet handling instructions from the service manager at the plurality of forwarding agents that include the actions determined by the service manager for the packet.

20. (Previously Presented) The method of Claim 3, wherein specifying packets that the forwarding agent is instructed to communicate to the service manager includes receiving a UDP packet at the forwarding agent.

21. (Previously Presented) The method of Claim 3, wherein receiving the packet interest instructions from the service manager at the forwarding agent includes receiving a wildcard affinity at the forwarding agent that identifies one or more flows to be received by the forwarding agent.

22. (Previously Presented) The method of Claim 21, wherein the wildcard affinity includes a selected one of a group consisting of:

a source IP address;

a destination IP address;

a source port; and

a destination port.

23. (Previously Presented) The method of Claim 22, wherein the wildcard affinity further includes a protocol identifier.

24. (Previously Presented) The method of Claim 22, wherein the wildcard affinity source IP address includes a plurality of IP addresses.

25. (Previously Presented) The method of Claim 22, wherein the wildcard affinity destination IP address includes a plurality of IP addresses.

26. (Previously Presented) The method of Claim 22, wherein the wildcard affinity destination port includes a plurality of ports.

27. (Previously Presented) The method of Claim 22, wherein the wildcard affinity source port includes a plurality of ports.

28. (Previously Presented) The method of Claim 22, wherein the wildcard affinity source IP address includes a range of IP addresses.

29. (Previously Presented) The method of Claim 22, wherein the wildcard affinity destination IP address includes a range of IP addresses.

30. (Previously Presented) The method of Claim 22, wherein the wildcard affinity destination port includes a range of ports.

31. (Previously Presented) The method of Claim 22, wherein the wildcard affinity source port includes a range of ports.

32. (Previously Presented) The method of Claim 22, wherein the wildcard affinity source IP address specifies a set of IP addresses by using a netmask element.

33. (Previously Presented) The method of Claim 22, wherein the wildcard affinity destination IP address specifies a set of IP addresses by using a netmask element.

34. (Previously Presented) The method of Claim 3, wherein the action determined is translating the destination IP address of the initial packet.

35. (Previously Presented) The method of Claim 3, wherein the action determined is forwarding the initial packet to a destination different than the destination IP address of the initial packet.

36. (Previously Presented) The method of Claim 3, wherein the action determined is forwarding the initial packet without changing the initial packet and reporting information about the packet to the service manager.

37. (Previously Presented) The method of Claim 3, wherein the action determined is translating the source IP address of the initial packet.

38. (Currently Amended) A forwarding agent, comprising:

a service manager receiving interface for receiving instructions from a service manager specifying actions to be performed for server designated packets, wherein the forwarding agent and the service manager are configured on a single network device such that one or more packets may be exchanged between the forwarding agent and the service manager within the network device;

a service manager sending interface for sending packets to the service manager;

a network packet receiving interface for receiving internet protocol (IP) packets from a network;

a network packet forwarding interface for forwarding IP packets to the network; and

a processor for performing the specified actions on the server designated packets, wherein the forwarding agent it operable to receive packet handling instructions that include the actions determined by the service manager for the packet, to receive a subsequent packet at the forwarding agent and to determine that the subsequent packet matches a criteria included in the packet handling instructions, the subsequent packet being handled at the forwarding agent according to the packet handling instructions, and wherein the instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;

a load balancing operation;

a packet modification operation;

a tunneling operation; and

a tag switching operation.

39. (Previously Presented) The forwarding agent as recited in Claim 38, further comprising a service manager instruction storage element for storing the service manager instructions.

40. (Previously Presented) The forwarding agent as recited in Claim 39, wherein the service manager instruction storage element includes a general instruction storage that stores criteria for forwarding packets to the service manager and a specific instruction storage that stores specific instructions for handling the server designated packets.

41. (Previously Presented) The forwarding agent as recited in Claim 40, further comprising a comparator for comparing portions of newly received packets to the stored criteria.

42. (Previously Presented) The forwarding agent as recited in Claim 40, wherein the stored criteria are affinities that identify one or more flows.

43. (Previously Presented) The forwarding agent as recited in Claim 38, wherein the forwarding agent is included in a selected one of a group consisting of:

a switch;

a load balancer; and

a router.

44. (Previously Presented) The forwarding agent as recited in Claim 40, wherein the stored criteria include a selected one or more of a source IP address, a destination IP address, a source port, and a destination port.

45. (Previously Presented) The forwarding agent as recited in Claim 38, wherein the server designated packets are designated by affinities.

46. (Previously Presented) The forwarding agent as recited in Claim 38, wherein the server designated packets are designated by a selected one or more of a source IP address, a destination IP address, a source port, and a destination port.

47. (Previously Presented) The forwarding agent as recited in Claim 38, wherein the service manager receiving interface and the network packet receiving interface are the same interface.

48. (Currently Amended) A computer medium for handling packets, the computer medium comprising code operable to:

receive instructions from a service manager;

process packets according to the instructions; ~~and~~

forward selected packets from a forwarding agent to the service manager, wherein the forwarding agent and the service manager are configured on a single network device such that one or more packets may be exchanged between the forwarding agent and the service manager within the network device;

receive packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet;

receive a subsequent packet at the forwarding agent;

determine that the subsequent packet matches a criteria included in the packet handling instructions; and

handle the subsequent packet at the forwarding agent according to the packet handling instructions, wherein the instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;

a load balancing operation;

a packet modification operation;

a tunneling operation; and

a tag switching operation.

49. (Currently Amended) A computer medium for providing a network service, the computer medium comprising code operable to:

receive packet interest instructions from a service manager, the instructions specifying one or more packets that a forwarding agent is to communicate to the service manager, wherein the forwarding agent and the service manager are configured on a single network device such that one or more packets may be exchanged between the forwarding agent and the service manager within the network device;

receive an initial packet that matches one of the packets specified in the packet interest instructions from the service manager; ~~and~~

communicate the initial packet to the service manager so that the packet may be processed at the service manager to determine one or more actions that are to be performed for the packet;

receive packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet;

receive a subsequent packet at the forwarding agent;

determine that the subsequent packet matches a criteria included in the packet handling instructions; and

handle the subsequent packet at the forwarding agent according to the packet handling instructions, wherein the instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;

a load balancing operation;

a packet modification operation;

a tunneling operation; and

a tag switching operation.

50. (Cancelled)

51. (Currently Amended) The medium of ~~Claim 50~~ Claim 49, wherein receiving the packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet includes receiving a user datagram protocol (UDP) packet at the forwarding agent.

52. (Currently Amended) The medium of ~~Claim 50~~ Claim 49, wherein the code is further operable to:

receive the initial packet from the service manager along with the packet handling instructions; and

handle the packet according to the packet handling instructions.

53. (Previously Presented) The medium of Claim 52, wherein handling the packet according to the packet handling instructions includes translating the destination IP address in the packet so that the packet is forwarded to a different IP address than the IP address originally included in the packet header.

54. (Previously Presented) The medium of Claim 52, wherein handling the packet according to the packet handling instructions includes communicating the packet to a destination specified in the packet handling instructions using tag switching.

55. (Previously Presented) The medium of Claim 52, wherein handling the packet according to the packet handling instructions includes communicating the packet to a destination specified in the packet handling using IP tunneling.

56. (Cancelled)

57. (Previously Presented) The medium of Claim 49, wherein the code is further operable to forward the packet from the service manager to a destination other than the forwarding agent, the destination being determined by the service manager.

58. (Previously Presented) The medium of Claim 57, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes translating the destination IP address in the packet.

59. (Previously Presented) The medium of Claim 57, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes communicating the packet to the destination using tag switching.

60. (Previously Presented) The medium of Claim 57, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes communicating the packet to the destination using IP tunneling.

61. (Previously Presented) The medium of Claim 49, wherein the forwarding agent is implemented on a selected one of a switch and a router.

62. (Previously Presented) The medium of Claim 49, wherein the service manager is implemented on a switch.

63. (Previously Presented) The medium of Claim 49, wherein receiving the packet interest instructions from a service manager includes receiving a multicast of the packet interest instructions sent to a plurality of forwarding agents.

64. (Previously Presented) The medium of Claim 63, wherein the code is further operable to receive unicast packet handling instructions from the service manager that include the actions determined by the service manager for the packet.

65. (Previously Presented) The medium of Claim 63, wherein the code is further operable to receive multicast packet handling instructions from the service manager at the plurality of forwarding agents that include the actions determined by the service manager for the packet.

66. (Previously Presented) The medium of Claim 49, wherein the code is further operable to receive a UDP packet at the forwarding agent.

67. (Previously Presented) The medium of Claim 49, wherein the code is further operable to receive a wildcard affinity.

68. (Previously Presented) The medium of Claim 67, wherein the wildcard affinity includes a selected one or more of a source IP address, a destination IP address, a source port, and a destination port.

69. (Previously Presented) The medium of Claim 67, wherein the wildcard affinity further includes a protocol identifier.

70. (Previously Presented) The medium of Claim 67, wherein the wildcard affinity source IP address includes a plurality of IP addresses.

71. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity destination IP address includes a plurality of IP addresses.

72. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity destination port includes a plurality of ports.

73. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity source port includes a plurality of ports.

74. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity source IP address includes a range of IP addresses.

75. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity destination IP address includes a range of IP addresses.

76. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity destination port includes a range of ports.

77. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity source port includes a range of ports.

78. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity source IP address specifies a set of IP addresses by using a netmask element.

79. (Previously Presented) The medium of Claim 68, wherein the wildcard affinity destination IP address specifies a set of IP addresses by using a netmask element.

80. (Previously Presented) The medium of Claim 49, wherein the action determined is translating the destination IP address of the initial packet.

81. (Previously Presented) The medium of Claim 49, wherein the action determined is forwarding the initial packet to a destination different than the destination IP address of the initial packet.

82. (Previously Presented) The medium of Claim 49, wherein the action determined is forwarding the initial packet without changing the initial packet and reporting information about the packet to the service manager.

83. (Previously Presented) The medium of Claim 49, wherein the action determined is translating the source IP address of the initial packet.

84. (Currently Amended) A system for providing a network service, comprising:

means for receiving instructions from a service manager, the instructions indicating how packets received are to be processed;

means for processing the packets according to the instructions; ~~and~~

means for forwarding selected packets to the service manager;

means for receiving packet handling instructions from the service manager at ~~the~~ a forwarding agent that includes the actions determined by the service manager for the packet, wherein the forwarding agent and the service manager are configured on a single network device such that one or more packets may be exchanged between the forwarding agent and the service manager within the network device;

means for receiving a subsequent packet at the forwarding agent;

means for determining that the subsequent packet matches a criteria included in the packet handling instructions; and

means for handling the subsequent packet at the forwarding agent according to the packet handling instructions, wherein the instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;

a load balancing operation;

a packet modification operation;

a tunneling operation; and

a tag switching operation.

85. (Currently Amended) A system for providing a network service, comprising:

means for receiving packet interest instructions from a service manager, the instructions specifying packets to be sent to the service manager;

means for receiving an initial packet that matches one of the packets specified in the packet interest instructions from the service manager; ~~and~~

means for communicating the initial packet to the service manager so that the packet may be processed at the service manager to determine actions that are to be performed for the packet;

means for receiving packet handling instructions from the service manager at ~~the~~ a forwarding agent that include the actions determined by the service manager for the packet, wherein the forwarding agent and the service manager are configured on a single network device such that one or more packets may be exchanged between the forwarding agent and the service manager within the network device;

means for receiving a subsequent packet at the forwarding agent;

means for determining that the subsequent packet matches a criteria included in the packet handling instructions; and

means for handling the subsequent packet at the forwarding agent according to the packet handling instructions, wherein the packet interest instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;

a load balancing operation;

a packet modification operation;

a tunneling operation; and

a tag switching operation.